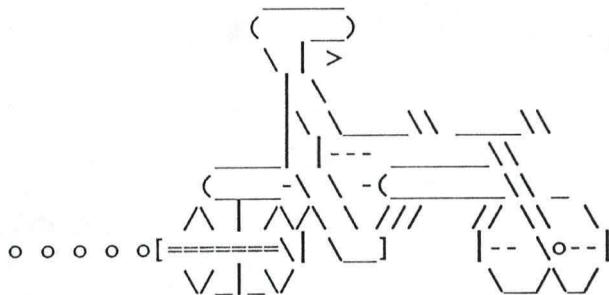


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OHV Management

An Operational Approach



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Clemson Class of 1990
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ABSTRACT

OHV use on the Raven Ranger District, Sam Houston National Forest is in great demand by the urbanites from the Houston, Texas area. Existing trails show signs of over use and design criteria inadequate to assure resource management needs are fulfilled, conflicting uses are manageable, and safety is assured. Current management conditions are assessed and an outline of operational concerns is proposed for problem resolution.

Key words: OHV, Conflicts, Resource Management, User Safety.

EXECUTIVE SUMMARY

Off-highway vehicle use is assessed on the Raven Ranger District of the Sam Houston National Forest to describe current trail systems and management consideration necessary to provide the trails at an acceptable maintenance level to fulfill environmental and legal needs.

This paper notes executive orders 11644 (2/8/72) and 11989 (5/24/77) which provides unified Federal policy toward the use of off-highway vehicles on public lands. The paper's purpose is to establish policies and provide for procedures that will ensure that the use of off-highway vehicles (OHV) on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.

Within the literature review it was noted early efforts to fulfill the executive orders included agencies which developed open cross-country areas for OHV recreation opportunities. These were described as sacrifice areas for a sport where controlled use was difficult and designated trails thought unmanageable. Current literature and experience show where

well designed trail systems are functional and do provide a more manageable OHV recreational program.

A review of trail design, construction, opportunities, restrictions, education, law enforcement, social-economic factors, and past experience all affirm the conclusion that a permanently marked trail system is the best management tool to assure resources, safety, and conflicts between forest uses are controlled as noted in executive order associated with OHV. Anything less than a well managed controlled OHV system falls short of the desired objectives. Open OHV areas create numerous trail, stream crossing, soil and threatened and endangered specie problems difficult to manage with limited resources. Safety is compromised especially where OHV cross roads and trails at unmarked or unknown points. Also conflicts with other forest users occur especially on the Sam Houston National Forest where heavy concentrations of other dispersed forms of recreation such as equestrian, hikers and bicyclist are prevalent. In addition threatened and endangered specie management requires controlled vehicular access on the Forest to protect those resources.

An outline of management direction for off-highway vehicle recreation trails is included. This provides a more detailed description of operational needs to assure OHV trails meet

minimum objectives for a site specific system. The outline provides data to guide those initiating and implementing trail systems by supplementing general direction found in manuals and guides. It provides quick reference and tools for those physically managing field requirements.

With managements understanding of operational needs and good cooperation of forest users designated OHV trails system should help assure OHV interest in the National Forest. Moving away from open cross-country areas to a more controlled trails system would seem to be the most appropriate solution.

I. INTRODUCTION

This paper will assess the current Off Highway Vehicle (OHV) status on the Raven Ranger District of the Sam Houston National Forest in Texas, and develop a strategy to manage this recreational opportunity within the criteria prescribed by law. This management plan will provide the type of recreational experience for off highway vehicle users and other forest users that are acceptable. The conclusions will provide information that could be utilized anywhere although specific comments and experience will likely reflect the Sam Houston National Forest.

The Sam Houston National Forest includes approximately 162,000 acres of which 102,000 acres are on the Raven Ranger District where all the designated OHV trails and open "cross county" sites exist. The formal assessment of these facilities for the purposes of OHV recreational opportunities has been included in three different Environmental Impact Statements of 1976, 1978 and 1987, which have been completed to assess multiple resource management.

At the present time approximately 55 miles of designated OHV trails have been designated for motorcycles and all-terrain

vehicles including 4-wheelers less than 50 inch in total width. An open area of approximately 14,000 acres is designated for the same type of OHVs. The open area and designated trails were officially recognized in 1976 after the first EIS, but prior to that date and since that time several other trails have evolved creating what is now a maze of trails crisscrossing the district. These are not officially recognized and are estimated to be in excess of 250 miles.

The trails are utilized by publics from Dallas to Houston. The Raven Ranger District is traversed by Interstate Highway 45 which runs between Dallas, 180 miles to the north, and Houston, 40 miles to the south of the district. Texas Highway Department statistics indicate that in excess of 12 million vehicles pass through the forest on I-45 carrying more than 18 million people annually. With this kind of exposure and proximity to Houston, Texas, which has over 3.5 million residents, thousands of OHV users have easy access to a large tract of public land. The Raven Ranger District has approximately 48,000 acres within a county adjacent to Houston which is described as the fastest growing county in Texas with the population projected to increase by 400,000 from 1990 to 2025 (Texas Dept. of Commerce, 1989).

In addition to the high population density around the forest, statistics (Motorcycle Statistical Annual, 1990) indicate Texas has approximately 61 motorcycle per 1000 public acres, which is a relatively high number compared to such states such as California with 8.7 motorcycle per 1000 public acres. This is created by the relatively low 2.1 percent of land in the state being in public ownership of which 20 percent is National Forest. The impact of less public land per capita in itself increases demand for open space to be utilized for such uses as OHV recreational needs which accentuated the demand on the Raven Ranger District. The most recent district statistics estimate 20,200 recreation visitor days of motorcycle use per year which includes the six to ten trailbike enduros permitted annually, one of which is a national event sanctioned through the American Motorcycle Association. Typically it has over five hundred bikes.

Management of Red Cockaded Woodpeckers (RCW), a threatened and endangered wildlife specie, adds further resource concerns that limit OHV access. In recent court decisions from the U.S. District Court, Eastern District of Texas, Lufkin Division, Sierra Club v. United States, case #L85-69-CA, dated October 20, 1988, OHV were either limited or prohibited from RCW sites. With this type of direction and assessments provided by wildlife biologists confirming such needs limiting OHV users to

manage wildlife resources becomes necessary. Currently the Endangered Species Act of 1973 protecting endangered species takes precedence over recreation uses.

Unfortunately resources necessary to manage the OHV trails have been limited and impacts to the resources have been continuing to show conditions that suggest past management practices were not adequate to ensure that off-highway vehicles were controlled to protect the resources, manage safety, and minimize conflicts among uses (The White House, Executive Order, #11644, 1972).

Currently stream banks at crossings show signs of soil movement creating gullies two and three feet deep leading to the stream. Trails in other areas have trenches one to two feet deep where water running down the trail erodes the exposed soils. Little rock or gravel stone is found in the soils that could help reduce OHV impact. In addition many trails are very close or possibly encroach upon sensitive wildlife management sites including those for threatened and endangered species such as the Red Cockaded Woodpecker. One of the largest populations of RCW west of the Mississippi River is found on the Raven Ranger District where some of the heaviest OHV use occurs in Region 8, the southeast region of the U.S. Forest Service.

Some traverse pipeline and utility right-of-ways creating undesirable impacts to other resource management objectives.

Safety concerns include undesigned trails crossing public roads and the poor use of safety gear by off-highway vehicle users. Also, conflicts between OHV trail users and other forest recreation users, such as hikers and equestrians, have occurred. Equestrians, hikers (there are over 114 miles of hiking trails on the district), and mountain bike users often use long segments of OHV trails.

Education and law enforcement efforts are provided, but the efforts to manage the vast number of users utilizing the facilities have been hampered by limited resources, including personnel. No user limits have been established for designated trails or open cross country facilities. Formal restrictions only limit use to designated trails or cross country site.

Statement of Purpose

Through analysis and application of known data from reference sources plus field experience, this project's purpose is to develop a strategy for control and management of OHV use on the Sam Houston National Forest. This assessment will identify many of the complex resource conflicts such as threatened and endangered specie, soils and others that must be managed to provide recreation opportunities for OHV users on the Sam Houston National Forest and not produce unacceptable conditions for other Forest interests.

Basic Assumptions

OHV recreational interest is expected to continue on this forest at the current or higher level.

Mountain bicycle, equestrian, and hiking trail use will continue to reflect a strong interest and an increase in growth.

OHV planning is necessary to reduce potential conflicts, to improve safety, and to reach the objectives of resource management.

Definitions

ATV, All Terrain Vehicle. Any motorized, off-highway vehicle 50 inches or less in width, having a dry weight of 600 pounds or less that travels on three or more low-pressure tires with a seat designed to be straddled by the operator. Low-pressure tires are six inches or more in width and designed for use on wheel rim diameters of 12 inches or less, utilizing an operating pressure of 10 pounds per square inch (psi) or less as recommended by the vehicle manufacturer. Intended for off-road use only.

OHV, Off-Highway Vehicle. Synonymous with Off-Road Vehicles. A motorized vehicle intended only for use off paved roads. Vehicle does not generally meet federal equipment emissions standards, but does have to comply with noise standard. Term often used to include motorcycles, three- and four-wheeled all-terrain vehicles, four-wheel drive and dune buggies.

PMT, Permanent Marked Trail. Trails officially designated with routes physically signed on the ground.

RIM, Recreation Information Management. An electronic data base to store recreation user statistics as reference.

RVD, Recreation Visitor Day. A measure utilized by the National Forest which aggregates twelve visitor hours. It may consist of one person for twelve hours, twelve persons for one hour, or any equivalent combination of continuous or intermittent recreation use by individuals or groups. This is a basic reporting unit in the RIM system.

TRAILBIKE ENDURO. A competitive event for trail bikers with the objective to pass specified course check points at exact predetermined times. It is not a race.

II. LITERATURE REVIEW

Various pieces of literature were reviewed during this investigation to assess the current OHV recreational use problems on the Sam Houston National Forest. Although related data and literature are available, it was basically noted that little was available on OHV management. Most of the information found was working papers put together by other short course participants or short sections from larger documents which provides supporting data as provided by the Motorcycle Industrial Council.

A Cross Country Approach

Efforts were made to assess cross country motorcycle areas and the concerns found when this type of ORV area is utilized. McEwen's Turkey Bay Off-Road Vehicle report (1978) was positive about cross country motorcycle areas. It describes a 170,000 acre area on lands administered by the Tennessee Valley Authority between Lake Barkley and Kentucky Lake, sometimes known as Land Between The Lakes, where a 2,350 acre open ORV site was established. The information in this report helped determine what kind of system was officially established back in 1978 for the Raven Ranger District. McEwen's use figures

reflected lower numbers than the numbers found on the Sam Houston National Forest, and the impact on resources did not reflect what is being found on this district, which shows signs of soil movement due to concentrated use and low maintenance. A more recent assessment of the Land Between The Lakes Turkey Bay Off-Road Area was not found, but within McEwen's report erosion was not indicated as a problem as is found on the Sam Houston National Forest.

Opportunity, Restrictions & Education/Law Enforcement

Williams Makel's Clemson Recreation Shortcourse paper entitled "All Terrain Vehicles and Trailbikes In The Forest-A Management Approach" provided at least three good points to assess for inclusion into a Sam Houston National Forest approach. Makel suggested that opportunity, restriction, and education/law enforcement all were necessary and dependent upon one another to ensure a reasonable OHV system. He indicates that opportunity, if developed well, could ease management, ease impact on the land, and reduce conflicts with other users. The author described further that lack of opportunity or closing down problem areas on one site simply cause the users to move to another location, solving little.

Restrictions were indicated as necessary to protect resources too sensitive to allow OHVs at any time, such as archeological sites, threatened and endangered species habitat and residential areas. Other reasons noted included fire control, safety, and operator experience levels.

Education and law enforcement was described as tools to inform the public, to assure they understand what is needed, and to protect the environment. Makel notes many ATV users are urban dwellers with little or no knowledge of their impact on the natural resources and not members of organized groups. Users from the urban areas generally have little knowledge of the wildlands and the impacts they create. Most ATV users are forced out of the urban areas since they are restricted from riding there. Another point indicated that education alone is not sufficient to assure riders comply with needed restrictions. Once information about safety needs and requirements to protect the resources have been provided; law enforcement at the appropriate time is described as necessary to reinforce education and control users refusing to utilize the information.

Trail Design and Construction

There are different sources of information available including "A Guide to Off-Road Motorcycle Trail Design and Construction" by Joe Wernex published by the American Motorcyclist Association. This document provides a good summary of design and construction technique that needs to be considered for OHV type systems. Elements including inventory, planning, location, construction, volunteers, and sound testing are all reviewed and illustrated to provide the reader with an understanding of the potential resolutions to trail system concerns. This document notes soil management technique for less stable sites, special corduroy technique for stream areas, and trail armoring/hardening for sensitive sites where bike impact must be controlled.

Another source reviewed included the USFS Handbook 2309.18 which is a Trails Management Handbook. Although the information was good, less detail was provided than was found in the AMA guide by Wernex. In this document as well as that by Wernex there is a guide provided to rate trail difficulty levels and provide the trail users with an indication of the skill necessary to traverse the route (appendix A). Also displayed was a trail tread armoring technique for sensitive sites (appendix B).

The Ozark - St. Francis National Forests, OHV Management Direction, 1990; and the Decision Notice and Finding Of No Significant Impact for trail improvement projects on the Kisatchie National Forest's Evangeline Ranger District were also examined to better understand current design standards and construction being considered or utilized to manage OHV trail systems. Both assessed OHV trail concerns similar to those found on the Sam Houston National Forest. Special attention in these pages was given to soils and streams where the impact was thought to be unacceptable due to the soil types. Kisatchie National Forest in Louisiana has soils that are often wet and has frequent streams to be crossed. Both conditions are similar to those found on the Sam Houston National Forest.

The Sam Houston National Forest

In 1981 Jim Page, then Recreation Staff Officer on the National Forest in Texas, completed a paper entitled "Identification and Proposed Solutions Of Trailbike Related Problems On The Raven Ranger District - Sam Houston National Forest" for the Clemson short course. This paper was used to compare current conditions with what Page noted in 1982 and to determine if any trends could be detected that would identify any specific conditions or concerns that should be highlighted for future

management efforts. Some of the problems that he identified from forest users include low trail maintenance standards, inadequate trailhead parking, inadequate enforcement of trail use regulations, inadequate OHV trails information, and problems between trailbikes and hunters.

The solutions Page suggested involved utilizing volunteers for maintenance, with funding described from the Forest Service as limited, and getting a strong commitment by line and staff officer for direction and assistance.

Socio-Economic Overview

During 1990 Catherine A. Albers completed a socio-economic overview for the National Forests and Grasslands in Texas which helps identify current and projected future trends of demographics in the vicinity of the Sam Houston National Forest. Statistics show Texas as the third most populated state in the union with Houston being the fourth largest city in the USA. Within the Sam Houston National Forest there are three counties. Demographic trends indicate the population is expected to increase 465,000 by the year 2025. Together with these counties and nearby Houston it is predicted the population will increase 3.4 million by that same year. Age

distribution is expected to follow the national trend in these populations. By the year 2025 minority groups are predicted to equal 50% of the population in the Houston Standard Metropolitan Statistical Area with distribution close to equal between the black and hispanic communities.

Texas Outdoor Recreation Plan (TORP)

The 1990 TORP is the state's sixth edition of a statewide comprehensive outdoor recreation plan since 1965. As part of their issues and recommendations it is stated that the Forest Service is the only public land managing agency to make provisions for off-road-vehicle riding opportunities and further indicated that most agencies have banned OHV from their lands. Forest Service multiple resource management along with the difficulties associated with it was described as an unenviable task which seems to indicate the recognition of how complex issues become. Recommendations suggest the U.S. Forest Service continue to provide a diversity of quality recreation opportunities under the multi-use management concept.

III. METHODOLOGY

To complete this paper information was gathered from Motorcycle Industry Council Statistical Reports, literature noted in review, experience on the Sam Houston National Forest, discussion with trail clubs, discussion with anti-OHV groups and Forest Service personnel. Motorcycle Industry Council Statistical Reports provided a better understanding of the trends occurring with the numbers of OHV and what use may be in the future. This in conjunction with the demographic statistics noted by Albers acted in projecting future trends expected on the forest.

The literature review helped assess OHV conditions elsewhere and on the Sam Houston National Forest and provided information to suggest alternatives of management. The literature search conducted at Texas A&M University library plus literature provided by other Forest Service personnel formed the basis for these alternatives.

Although formal interviews were not conducted, discussion with personnel from the American Motorcycle Association, Motorcycle Industry Council, Trail Riders of Houston, Houston Area Mountain Bike Association, North Houston ATV Club, Sam Houston

National Forest-Forest Watch Committee, Texas Parks & Wildlife, Lone Star Hiking Trail, and Equestrian Clubs have been conducted to assess other potential conflicts.

IV. DISCUSSION

The reader to this point should have developed an indication that OHV recreational opportunities are in high demand on the Sam Houston National Forest, and demand is expected to follow upward trends of demographic statistics. Due to the high use natural resources, soil movement, safety, and conflict concerns have also been noted.

Executive Orders 11644 and 11989 give authority to the National Forest to provide OHV recreational opportunities provided unacceptable adverse effects do not occur to the natural resources. Currently the trails and 14,000 acre open area provide those opportunities on the Sam Houston National Forest.

The orders also indicate this should be accomplished by managing natural resources to promote safety for all forest users and minimize conflicts among the various uses of these lands. To do this and manage the various interests there has to be systematic development of informed consent. By following current guidelines set up to comply with the National Environmental Protection Act, appropriate consent should be achieved.

The authority has been noted and now an effort is needed to resolve as many concerns as possible. There are two different elements which have been assessed. Essentially this is known as short term and long term management needs of the OHV trail system.

Short Term

Short term management would cover approximately two to five years and would involve the concerns of the existing OHV system that were assessed in the Forest Land Management Plan (FLMP) approved in 1987. Currently the system includes approximately 55 miles of permanently marked trails and the 14,000 acre open cross country area.

In the short term existing OHV systems need to be managed to protect the natural resources, assure safety, and manage conflicts. To do that, management direction should be developed for field personnel that, when implemented, will meet minimum standard and guides in FLMP. Appendix C provides an example of OHV Management Direction for the Sam Houston National Forest. Once implemented OHV trail systems should be acceptable to the public as well as the managing agency. This direction should include a concept like that suggested by Makel which included opportunity, restrictions, and education/law

enforcement. Utilizing Makel's concept and assuring the three elements should reduce management concerns.

Long Term

Long term management would involve OHV management needed over a longer period of time that might be five, ten, or twenty years into the future. Such an effort should include a plan that would assess the cross country needs and additional PMT as noted in FLMP. This effort would need to incorporate all the subject matter noted in the literature review including cross country areas, opportunity, restrictions, and education/law enforcement, trail design and construction, socio-economic overviews, Texas outdoor recreation plans, plus past management practices and problems on the Sam Houston National Forest.

Open cross country areas appear to be creating problems managing soils and threatened and endangered (T&E) specie plus conflicts with other forest users. Extended use over the years on the Sam Houston have created soil erosion on abandoned roads within the 14,000 acre site. As noted by Page in his 1982 assessment soil problems were identified then, and they still exist today with little resources available to resolve the problem when little or no restrictions are utilized on this site. Currently T&E specie are present in this area and

posting of these sites to exclude OHV travel is not functioning well. Many users not experienced with the area simply do not read available information and do not notice or read the posted information.

To manage OHV an attractive user oriented system needs to be in place as described by Makel. Opportunity, restrictions, and education/law enforcement need to be designed into the system. By utilizing many of Wernex's suggested trail design ideas and Makel's approach, many of the problems noted today would seem to be more manageable. Many good design criteria for trail maintenance and construction demonstrated by Wernex would help mitigate OHV impacts.

Due to the assessment necessary to provide an acceptable management plan, a formal environment analysis would be necessary to generate a decision and comply with National Environmental Protection Act. The procedure currently being utilized would also assure key and interested publics that they have an opportunity to provide their input reference their concerns. Other efforts to involve the public might include the creation of a trail users committee consisting of key individuals that could provide user input and appropriate critique to assure success of decisions.

The long term will require planning and formal assessment, but is necessary to get the commitment necessary to assure that all interests are committed to an OHV system that can fulfill the executive order intent.

Conclusion

A well designed designated trail system needs to be developed which will provide recreational opportunities, resource protection, safety, and minimize conflict with other forest users. To accomplish this the short and long term objectives should be completed to assess and define appropriate direction necessary to reach preferred objectives.

Since the Page assessment in 1982 little change has occurred to manage the OHV system on the Sam Houston National Forest. Short term and long term documents are needed to manage OHV systems. As noted by Page use of volunteer groups composed of OHV users should be expanded to complete much of the effort needed to maintain and construct additional trails. Page also indicated a strong commitment by line and staff personnel was needed to assure success. Once the formal documents noted in short term and long term needs are completed that commitment should be available.

With todays concerns for our environment the future of OHV recreation opportunities on the National Forest would seem to rest with management's ability to control OHV impacts to meet the objectives described in executive orders to protect the resources, provide for safety and to minimize conflicts with other forest users.

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TABLE 7 V - Population Projections, 1986-2025, for counties in the Houston
Metropolitan Statistical Area.

Population Projections, 1986-2025

Area	County	1986 Estimate	1990 Projection	2000 Projection	2025 Projection	Projected Increase 1986-2025
Houston MSA		3,227,395	3,534,912	4,333,327	6,927,770	114.7%
	Fort Bend	179,732	213,608	317,399	731,497	307.0%
	Harris	2,812,563	3,052,598	3,642,356	5,421,362	92.8%
	Liberty	52,049	57,578	74,250	131,323	152.3%
	Montgomery	159,696	185,257	266,630	585,201	266.4%
	Waller	23,355	25,871	32,692	58,387	150.0%
State of Texas		16,682,000	17,809,286	20,682,019	29,555,821	77.2%

Source: "Projections of the Population of Texas and Counties in Texas by Age, Sex, and Race/Ethnicity for 1990-2025", prepared by the Department of Rural Sociology, Texas A&M University, 11/88, for the State Data Center, The Texas State Population Estimates and Projections Program, Texas Department of Commerce.

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Appendix B

**PUBLIC LAND AND
OFF-HIGHWAY
MOTORCYCLE
STATISTICS
BY STATE**

Excluding Alaska which is predominantly public land, over one fifth (22%) of the total U.S. acreage, or 419 million acres, is public land managed by Federal and state government. Of this 419 million acres, 86% is in the western states. In 1989 an estimated 3.6 million motorcycles and ATVs were used for off-highway recreational purposes. In 1989 the off-highway motorcycle and ATV industry generated an estimated \$3.3 billion in consumer sales and services, and state taxes and licensing, of which \$0.9 billion is attributed to the retail sales of 303,000 new motorcycles and ATVs.

1989 PUBLIC LAND AND OFF-HIGHWAY MOTORCYCLE STATISTICS BY STATE

State	(1) Public Land Acreage			(2) 1989 Sales of New Mcs. Used Off-Hwy At Some Time		(3) Total Mcs. Used Off-Hwy At Some Time		(4) 1989 Est. Annual Economic Value Of Off-Hwy Retail Marketplace		Off-Hwy Mcs. Penetration	
	Total Acreage (000)	Fed. Gov't. (000)	State Gov't. (000)	% of State			Total Mcs. Used Off-Hwy At Some Time (000)			Off-Hwy Mcs. Per 100 Pop. (\$000)	Off-Hwy Mcs. Per 1000 Public Acres
Alabama	32,678	1,132	48	3.6	6,800	95,400	\$ 67,904	2.3	80.8		
Alaska	365,482	318,357	3,110	88.0	4,000	30,800	69,663	5.8	0.1		
Arizona	72,688	31,573	37	43.6	4,000	62,500	38,508	1.8	2.0		
Arkansas	33,599	3,399	44	10.2	9,500	97,200	110,956	4.0	28.2		
California	100,207	46,323	1,269	47.5	39,300	412,600	365,050	1.4	8.7		
Colorado	56,486	24,189	287	36.8	4,700	50,900	49,164	1.5	2.1		
Connecticut	3,135	14	181	6.2	2,600	31,100	24,650	1.0	159.5		
Delaware	1,266	30	11	3.2	800	7,500	7,590	1.1	182.9		
Dist. of Columbia	39	11	N/A	28.2	0	100	N/A	0.0	9.1		
Florida	34,721	4,280	278	13.1	10,500	131,500	100,333	1.0	28.9		
Georgia	37,295	2,299	61	6.3	10,000	123,200	93,272	1.9	52.2		
Hawaii	4,106	687	25	17.3	N/A	N/A	N/A	0.0	0.0		
Idaho	52,933	33,759	47	63.9	3,600	39,300	50,581	3.9	1.2		
Illinois	35,795	500	363	2.4	7,400	88,800	72,464	0.8	102.9		
Indiana	23,158	437	54	2.1	5,400	81,400	49,679	1.5	165.8		
Iowa	35,860	160	52	0.6	3,400	42,300	33,482	1.5	199.5		
Kansas	52,511	582	37	1.2	1,600	30,800	22,963	1.2	49.8		
Kentucky	25,512	1,401	42	5.7	5,900	58,200	58,375	1.6	40.3		
Louisiana	28,868	1,181	38	4.2	6,400	86,200	68,628	2.0	70.7		
Maine	19,848	150	72	1.1	2,500	29,000	38,056	2.4	130.6		
Maryland	6,319	197	216	6.5	4,500	41,200	39,756	0.9	99.8		
Massachusetts	5,035	83	266	6.9	4,100	50,200	41,118	0.8	143.8		
Michigan	36,492	3,529	253	10.4	13,800	168,200	149,101	1.8	44.5		
Minnesota	51,206	3,460	3,441	13.5	7,000	80,800	73,613	1.9	11.7		
Mississippi	30,223	1,678	22	5.6	5,000	59,400	81,423	2.3	34.9		
Missouri	44,248	2,072	107	4.9	6,400	89,600	69,887	1.7	41.1		
Montana	93,271	28,236	52	30.3	3,000	27,800	45,214	3.4	1.0		
Nebraska	49,032	714	148	1.8	2,500	30,600	39,287	1.9	35.5		
Nevada	70,264	59,815	144	85.3	3,000	23,300	45,242	2.1	0.4		
New Hampshire	5,769	740	30	13.3	1,900	27,800	26,453	2.5	36.1		
New Jersey	4,813	151	300	9.4	5,800	54,200	53,478	0.8	142.4		
New Mexico	77,766	25,871	119	33.4	1,900	26,700	27,522	1.7	1.0		
New York	30,681	1,460	258	5.6	11,300	143,400	115,424	0.8	83.5		
No. Carolina	31,403	2,219	125	7.5	10,500	104,200	98,547	1.6	44.5		
North Dakota	44,452	1,942	16	4.4	1,000	14,500	11,348	2.2	7.4		
Ohio	26,222	322	193	2.0	9,400	131,900	93,041	1.2	256.1		
Oklahoma	44,088	867	95	2.2	3,200	55,000	44,416	1.7	57.2		
Oregon	61,599	30,031	89	48.9	5,800	69,600	68,079	2.5	2.3		
Pennsylvania	28,804	639	276	3.2	14,400	160,500	148,816	1.6	175.4		
Rhode Island	677	5	9	2.1	700	6,900	6,269	0.7	492.9		
So. Carolina	19,374	1,169	79	6.4	4,200	37,700	54,049	1.1	30.2		
So. Dakota	48,882	2,733	113	5.8	1,200	14,900	14,037	2.1	5.2		
Tennessee	26,728	1,988	120	7.9	8,700	107,900	88,334	2.2	51.2		
Texas	168,218	3,335	225	2.1	15,300	217,500	150,225	1.1	51.1		
Utah	52,697	33,569	95	63.9	3,600	58,400	54,810	3.4	1.7		
Vermont	5,937	322	171	8.3	1,200	12,500	14,044	2.2	25.6		
Virginia	25,496	2,455	54	9.8	5,400	74,000	54,112	1.2	29.5		
Washington	42,694	12,459	234	29.7	5,800	79,600	68,261	1.7	6.3		
West Virginia	15,411	1,165	206	8.9	4,500	57,100	69,256	3.1	41.6		
Wisconsin	35,011	1,890	119	5.7	5,200	73,400	58,641	1.5	36.5		
Wyoming	62,343	31,431	119	50.6	1,300	16,200	14,979	3.4	0.5		
U.S. Total	2,271,342	727,111	13,750	32.6	303,000	3,624,000	\$ 3,250,100	1.5	4.9		

Note: The 1989 sales, population, and economic figures above are not comparable to prior year estimates due to sales and population revisions. Includes competition motorcycles and three and four-wheeled all-terrain vehicles.

Source: (1) Statistical Abstract of the United States, 1989, U.S. Department of Commerce, Bureau of Census. Includes state park and recreation areas only.

(2) Derived from MIC Manufacturers Shipment Reporting System, 1989 Annual Report.

(3) 1989 Estimated Motorcycle Population and Usage, Motorcycle Industry Council, Inc., Irvine, CA.

(4) Derived from "Economic Value of the Motorcycle Retail Marketplace," on page 11, by M.I.C. Includes retail sales of motorcycles and ATVs (new and used) and parts and accessories, dealer servicing, product advertising, vehicle financing charges, insurance premiums, dealer personnel salaries, state sales and dealer personal income taxes, and vehicle registration fees.

APPENDIX C

MANAGEMENT DIRECTION

OFF-HIGHWAY VEHICLE (OHV) MANAGEMENT

SAM HOUSTON NATIONAL FOREST

June 10, 1991

Prepared by: Timothy R. Bigler

District Ranger

Approved by:

Forest Supervisor

National Forests in Texas
Sam Houston National Forest
Raven Ranger District
OHV Management Direction

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Management Direction
OHV Management
Sam Houston National Forest

I. BACKGROUND

Because of the rapidly expanding recreational vehicle use of public lands and the resultant conflicts with other users, impacts on resources, and a wide variety of policies for management of ORV's a National ORV Policy was issued by the President. Executive Order 11989 of May 25, 1977 directed that Federal Land Managing Agencies develop plans, policies, procedures, and regulations "that will ensure that the use of off road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, and to minimize conflicts among the various uses of those lands."

II. EXISTING SITUATION

As directed by executive orders 11644 (1972) and 11989 (1977) an off road vehicle management plan was developed during the 1970's for the National Forests in Texas (NFT) which included the Sam Houston National Forest. The off road vehicle plan for the NFT was signed on April 8, 1975, to provide direction for governing off road vehicle uses.

During 1977 and 1978 The Sam Houston National Forest Land Management Plan and Environmental Impact Statement and the 1975 off road vehicle plan was incorporated within that document. On December 12, 1978, that document was approved and references to off road vehicles are found on pages 72 - 81 and 83 - 85. Current Forest Land Resources Management Plan signed May 20, 1987, did not change off road vehicle standards and incorporates that noted in the 1978 Sam Houston National Forest Land Management Plan and Environmental Impact Statement.

By Supervisor's Order dated 11/28/77 the Sam Houston National Forest is closed to off road vehicles except where posted open.

By Supervisor's Order #489-90/03 dated October 30, 1990, horses are not permitted on the off road vehicle trails.

Hiking trails are closed to off road vehicles by Supervisor's Order #489-90/04 dated October 30, 1990.

The management direction in "FSM 2355 and R8 supplement 25 to FSM 2351.4 will be followed to manage off-road vehicle use".

These manual references provide direction from the Washington and Regional Offices, provide spelling and definition of terms, and set policy for implementation of ORV Plans down to the Forest level.

III. GOAL

A. Program Goal

The goal of the OHV Program on the Sam Houston National Forest is to provide sufficient trails for enjoyable experiences and to adequately inform enthusiasts through publications as well as signing where they may ride on the Forest. National Forests in Texas Forest Land Management Plan, pages IV 20 - 21, describes minimum trail needs at 200 miles. This program must provide for visitor safety, environmental protection, and minimize conflicts between uses of the Forest.

B. Management Direction Goal

The purpose of this document is to provide flexibility to manage the recreation use as necessary, to achieve the above goal yet standardize some program aspects, to provide consistency, and to enhance the riders recreation experience. Due to varying demand, use characteristics, Forest conditions, and compatibility with other activities, each district will have maximum flexibility to manage their program.

This document is designed to standardize information dispersal, signing, NEPA analysis and enforcement to provide continuity.

IV. MANAGEMENT OBJECTIVE

A. Provide for OHV use

All Forest Development roads and trails on the Sam Houston National Forest are closed unless posted open as noted by Forest Supervisor's order dated .

Executive Order 11989 permits OHV use for administrative purposes in the general Forest area. District Rangers will be authorized to grant permission for Forest Service, other agencies,

organizations, or businesses to utilize OHV'S in the general Forest area in the performance of official duties or emergencies.

Rangers are authorized to issue special permits to disabled or handicapped individuals to hunt, fish, or have access to the general Forest area by OHV's.

B. Involvement and Information

First ensure that the public understands where OHV use is encouraged an/or legal. Make a distinction between Forest Development Road and Trails, where OHV use is under United States First Service authority and state or county maintained roads (where state laws prohibiting/restricting OHV use applies). Only, street legal OHV's are permitted to use open FDR's.

1. Maps

Districts will have to develop maps illustrating open and restricted Forest Development Roads and Trails, and roads under county or state jurisdiction. Maps will need to show restrictions by types of vehicles and seasons of use if applicable. Maps will also show designated OHV trail systems. Map standards and procedures will be developed by engineering and will be made available to the public. Map texts will list OHV regulation, safety tips, "Tread Lightly", trail etiquette, and Low Impact camping information as a minimum.

Designated trail system should be coded to indicate trail difficulty levels. Maps should also indicate that developed recreation sites are closed to off road vehicle use.

Wilderness areas, special interest areas, scenic areas, biological areas, riparian areas, hiking, and horse back trails where use is prohibited should be prominently displayed on the maps.

2. Signing

A. On-Site Signing

In order to provide consistency between districts and enhance visitor understanding as well as prevent confusion, signing will be consistent Forest wide.

Designated roads that are open to OHVs shall be appropriately signed. Such signs will be placed on trees with aluminum nails or flexible fiberglass posts with appropriate self-adhering decals affixed including road and trail numbers.

Where certain type vehicles are determined to be incompatible, they should be shown as prohibited by proper signing. See Exhibit #3 for the signing system prescribed.

Where trailhead parking areas exist, bulletin boards may be effective. Such information as maps, regulations, and safety messages should be displayed. Illustrations of the symbol signs that will be found on the trail should be explained. See exhibit #3.

B. Off-Site Notification

The Sam Houston National Forest by Supervisor's Order is closed to OHV unless posted open.

The public will have to be informed of the areas open through newspaper and other media presentation as well as through bulletin boards throughout the Forest, brochures, maps, and personal contacts by Forest Personnel. Organized OHV volunteer groups, OHV dealerships, and individuals should be contacted to help inform others of the rules, regulations, and policies relating to OHV use on the Forest.

3. Volunteers - Partnerships

An essential part of any public information dispersal system is through the many clubs, organizations, individuals, and partnerships who are interested in and willing to contribute their time, energy, and resources to their favorite past time. Dealers, manufacturers, and maintenance businesses can all distribute printed material and "word of mouth" information to the individuals who are not members of

organized groups. Districts should make every effort to incorporate these interests into information sharing, planning, designing or designating, constructing, and maintaining these facilities.

4. Personal Contacts

Districts should give serious considerations to equipping designated "Tread Lightly" or trail coordinators to ride trails frequently making contact with OHV riders. This is an excellent tool to meet groups and individuals seeking their assistance and support for compliance with regulations, "Tread Lightly" and trail ethics programs. Properly equipped employees riding with enthusiasts can obtain higher degrees of cooperation than through tough restrictions.

C. Safety

OHV drivers must understand that when using their equipment on National Forests they assume an inherent risk. They must be experienced enough to keep their vehicle under control at all times and anticipate the unexpected. This message will be conveyed through maps, brochures, recreation opportunity guide (ROG), and personal contacts. Safety will be promoted through contacts with individuals, organized groups, and distributors.

Designated OHV trails will be selected and managed for reasonably safe conditions. Users will be informed of the difficulty level (designated easy, more difficult, and most difficult) as well as any unusual hazard. At road crossings signing will be provided to adequately alert both drivers.

Safety analysis - only OHV that are street legal meeting appropriate state laws are permitted to use open Forest Development Roads. All OHV operators must have state driver's license or state identification card as noted in Forest Supervisor Order #13-90/06 dated October 30, 1990.

To provide for adequate safety in trail design and construction use the following:

Safety - use design criteria - Trails Management Handbook (FSH 2309.18), Road Preconstruction Handbook (FSH 7709.56), Wernex, Joe; A Guide to Off-Road Motorcycle Trail Design and Construction; American Motorcycle Association; 1984.

D. Environmental Protection:

1. NEPA Compliance

NEPA Compliance is essential in implementing all project level decisions.

2. Inventory

Only roads and trails in the road inventory (TIS) are system roads (FDR) or trails (FDT). All FDR's and FDT's will be mapped on primary series maps (2.64"/mile) and entered into TIS. All trails must be entered into the TIS System before maintenance funds can be legally expended.

3. Planning (Designation)

During this phase, get help from user groups and cooperators, such as Texas Parks & Wildlife, Trail Riders of Houston, Houston Area Mountain Bike Rider Association, OHV Clubs, equestrian groups, and other interested persons or groups and the general public.

4. Designation Criteria

Criteria listed in FSM 2355.14 shall be used to determine the designation of candidate roads and trails as open, restricted, or closed. In addition, the following checklist and data sources should also be used for evaluating candidates:

- a. Safety - Use design criteria - Trails Management Handbook (FSH 2309.18), Wernex, Joe; A Guide to Off-Road Motorcycle Trail Design and Construction; American Motorcycle Association; 1984.
- b. FLMP Management Areas - OHV use should be compatible with the Recreation Opportunity Spectrum (ROS), Wilderness, Special Interest Area, Research Natural Area, Wild and Scenic River Study Area, cultural resources, and other resource management objectives established for the area.

- c. Jurisdiction - Plans will be prepared only on those roads and trails for which the Forest Service has jurisdiction; i.e., road and trails crossing private lands, the Forest Service must have a permanent, unrestricted right-of-way.
- d. Threatened and Endangered Species - See FLMP and current list of known species and locations. OHV trails must not traverse red-cockaded woodpecker colony sites.
- e. Cultural Resources - Check District and Supervisor's Office maps to determine if a cultural resource inventory has been conducted. If so, check for any mitigating measures. If not, conduct an inventory and complete compliance process prior to evaluation of candidate.
- f. New Regeneration Areas - Apply management techniques to minimize riding in new regeneration areas.
- g. Visual Quality Objectives (VQOs) and Aesthetics - See adopted VQO map. Avoid concentrated trail systems in retention and partial retention zones.
- h. Land Status - Avoid designating OHV routes near private lands to reduce possible conflicts.
- i. Special Uses - Determine existing or planned uses that might conflict with OHV use. (Pipelines, Power lines, ROW, etc.)
- j. Air and Noise - Determine if OHVs will cause significant conflict with other uses. Ex. - campgrounds; adjacent private landowners or activities, See management direction in the FLMP and use Off-Highway Motorcycle and All-Terrain Vehicle Stationary Sound Test Manual, revised, 1990, and note statement "a doubling of the distance from the source to the ear generally causes a loss of 6 DBA (decibels).

- k. Sensitive Soils - Use soil interpretation reports or special surveys to identify soil problems. Eliminate candidate or plan mitigating measures where soil movement cannot be kept within standards. In addition, see standards and guides in FLMP.
- l. Stream Crossings - Determine impact on fisheries and water quality. Provide for stable crossings. Bridge only when necessary. Riparian areas should be avoided.
- m. Management Indicator Species - See district maps. Determine if OHV use will significantly impact species. Impacts may be mitigated through seasonal use if appropriate. Manage OHV use to achieve for open road densities. Be aware of standards for open road and trail densities in developing OHV routes.

See V-B. Closure/Restrictions Item 2 page 9 for muffler and spark arrester standards.

5. Plan Updates/Revisions

Changes in the status of OHV Plan designation of trails/areas will be necessary from time to time as policies, on-the-ground conditions, public needs, resource needs, and other factors change. The environmental assessment prepared for the compartment prescription process can include decisions on this type. Supervisor's Orders will be prepared upon decision notice issuance. A revised base map will be prepared during each FLMP process or sooner if tied into an administrative map update.

E. Minimize User Conflicts

See sections on informing the public. NEPA Compliance, mapping and designation criteria and monitoring for action items to be considered to minimize user conflict. Supervisor's Orders may be issued in other situations as necessary.

V. ENFORCEMENT

A. General

Management of OHV use requires an effective program emphasizing dissemination of information to the public, public notification and involvement of decisions, signing, and appropriate enforcement action. The goal is to prevent violations and achieve voluntary compliance whenever possible. The national campaign "Tread Lightly" will focus on proper driving habits and obeying the regulations.

Enforcement shall be carried out in a professional manner and shall provide for resource protection and for the safety and consideration of the public and the user in accordance with FSM 5300.

B. Closure/Restriction

Appropriate Forest Supervisor's orders will be prepared by the District Rangers for approval of the Forest Supervisor. Orders will then be made available to the public at District Ranger and Forest Supervisor offices.

Forest Supervisors orders are required to implement the travel management direction of the FLMP. Issue Supervisor's orders that contain prohibitions that achieve the following:

1. All vehicles traveling Forest Development Trails shall meet the state standards for brakes, lighting, muffler, and spark arrester. 36 CFR 261.13 (b), (d), (i), TX
2. All vehicles traveling designated roads and trails will not exceed the maximum noise limit allowed. This maximum is not to exceed 99 DBA which is the SAE and MIC/E-79 Stationary Test taken at 20 inches from the exhaust at a 45 degree angle. This test is equivalent to 86 DBA at 50 feet. Use Off-Highway Motorcycle and All-Terrain Vehicle Stationary Sound Test Manual. Motorcycle Industry Council, Arlington, Virginia 22202-1983. 36 CFR 261.13 (d) and TX

3. To implement closure of National Forest Lands to motorized travel, an order must be issued, and must describe the area to which the order applies. Consideration must be given to emergency, permittee, and administrative use. 36 CFR 261.50 (a)
4. Unlicensed vehicles on Forest Development Roads will not be permitted. Street legal OHV are permitted to use open FDR's.

VI. MONITORING

Districts will have to develop a monitoring process.

The FLMP indicates that monitoring of OHV use will be done to provide vehicle management direction, resource protection, public safety, and prevent user conflicts.

A. Resource Monitoring

Monitoring is both a required and essential phase of a well-managed OHV program. An annual monitoring program should be conducted for two primary purposes.

1. To determine if management objectives for OHV use are being met.
2. To determine if unacceptable adverse effects are occurring.

A reasonably simple resource monitoring system is recommended in Exhibit #5 to evaluate current and potential impacts arising from OHV operations.

B. Social Monitoring

Monitor social aspects of the OHV program on the forest through intense interaction and involvement with OHV users, partners, and the general public to provide enjoyable experiences for the rider balanced with expectations of other forest visitors, activities, and forest resources.

The intensity of monitoring depends upon the intensity of OHV use and the sensitivity of the area. Some areas now receive such intensive use that monitoring may be needed more than once per year. On other areas an annual review may be sufficient.

VII. OHV IMPLEMENTATION SCHEDULE

The following suggested action item may be used at the districts discretion. It is expected that situations and circumstances on each district will dictate the sequence of events necessary to implement the OHV management direction. The NEPA process must be followed and public involvement maximized in each phase of implementation.

Action Item

1. Inventory initial trails.
2. Provide OHV maps.
3. Sign all necessary trails.
4. Inform and educate users about OHV policy and regulations through the proposed "Tread Lightly" campaign.
5. Planning (Designation of restrictions).
6. Issue necessary supervisor's orders.
7. Review and revise OHV plan as necessary.

Completion dates will be established at the discretion of each district ranger. Districts should continue to move forward in implementing this direction.

EXHIBIT #1

DEFINITIONSAll-Terrain Vehicle (ATV)

Any motorized, off-highway vehicle 50 inches or less in width, having a dry weight of 600 pounds or less that travels on three or more low-pressure tires with a seat designed to be straddled by the operator. Low-pressure tires are six inches or more in width and designed for use on wheel rim diameters of 12 inches or less, utilizing an operating pressure of 10 pounds per square inch (psi) or less as recommended by the vehicle manufacturer. Intended for off-road use only. (FSM 2309.18, page 06)

Designated Use

Designated Forest Development Roads and Trails that allow, restrict, or prohibit specific types of OHV use as follows:

Open

Only street legal OHVs are permitted to use open FDRs.

Restricted

Those on which motorized vehicle use is restricted by times or season of use, types of vehicles, vehicle equipment, or types of activity specified in orders issued under the authority of 36 CFR 261.

Closed

Those on which all motorized vehicle use is prohibited, except by permit, under authority of 36 CFR 261, or by law.

Forest Roads

Those roads entirely on or partially within, or adjacent to and serving the National Forests and is necessary for the protection, administration, and use of the National Forest System and the use and development of its resources. (FSM 7705, ITEM 2)

FOREST DEVELOPMENT ROADS (FDR)

A Forest road under the jurisdiction of the Forest Service (FSM 7705, Item 3)

Forest Development Trails (FDT)

As defined in 36 CFR 212.1 and 261.2 (FSM 1023.4), those trails entirely or partially within, or adjacent to and serving the National Forests and other areas administered by the Forest Service that have been included in the Forest Development Transportation Plan. (FSH 2309.18 page 05; and FSM 2353.05, item 2)

Motorcycle

A two-wheeled motor vehicle (trailbike) having a saddle for the use of the rider and manufactured primarily for off-road use.

Motorcycle Trail

A Forest Development Trail designed and/or designated for motorcycle (trailbike) use.

Off-Highway Vehicle (OHV)

Synonymous with Off-Road Vehicles. Use areas of the Forest where a series of roads or trails have been designated for OHV use. OHV use will be limited to designated open roads or trails. Off roads or off trails travel by OHVs is prohibited.

Off-Road Vehicles (ORV)

A motorized vehicle intended only for use off paved roads. Vehicle does not generally meet federal equipment emissions standards, but does have to comply with noise standard. Term often used to include motorcycles, three- and four-wheeled all-terrain vehicles, four-wheel drives and dune buggies. (1/Wernex)

Public Roads

Any road under the jurisdiction of and maintained by a public authority that is "open to public travel" (FSM 7705, ITEM 6) Forest Development roads that are 100% FS owned and maintained are not "public roads."

Road

A general term denoting a facility for purposes of travel by vehicles greater than 50 inches in width. Includes only the area occupied by the road surface and cut and fill slopes.

Transportation Information System (TIS)

An electronic data base to compile road management statistics for future reference.

Trail

A general term denoting a way for purposes of travel by foot, stock, or trail vehicles with a wheel base width of 50 inches wide or less. (FSM 2353.05, item 7)

Trail Vehicle

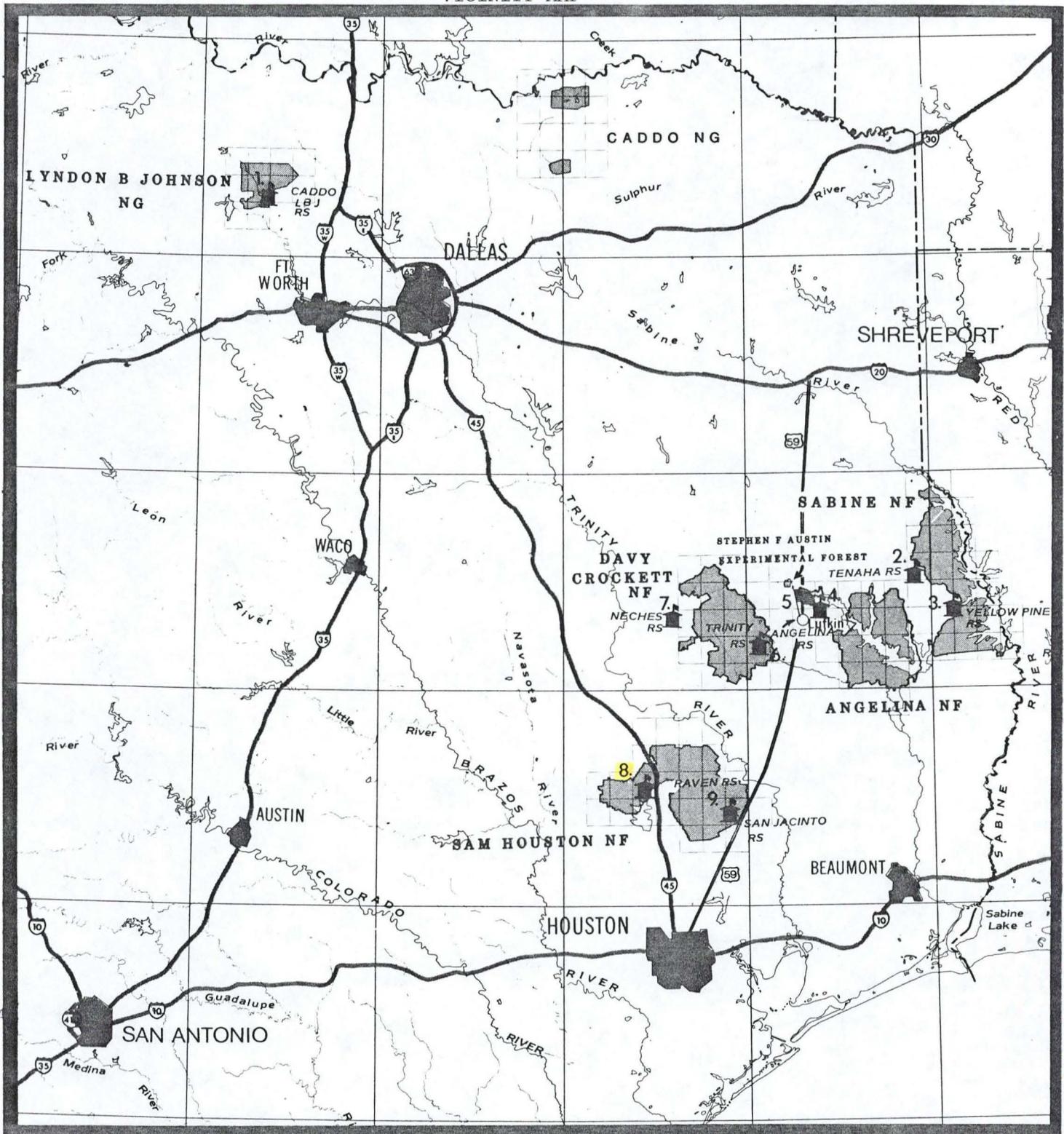
Vehicles designed for trail use that are 50 inches wide or less, such as bicycles, snowmobiles, trailbikes, trail scooters and all terrain vehicles.

Vehicle

Any device in, upon, or by which any person or property is or may be transported, including any frame, chassis, or body of any motor vehicle, except devices used exclusively upon stationary rails or tracks.

EXHIBIT #2
VICINITY MAP

C-15



CADDO-LBJ NATIONAL GRASSLANDS

1. DISTRICT RANGER OFFICE
DECATUR, TEXAS

SABINE NATIONAL FOREST

2. TENAH DISTRICT RANGER OFFICE
SAN AUGUSTINE, TEXAS
3. YELLOW PINE DISTRICT RANGER OFFICE
HEMPHILL, TEXAS

ANGELINA NATIONAL FOREST

4. ANGELINA DISTRICT RANGER OFFICE
LUKIN, TEXAS
5. FOREST SUPERVISORS OFFICE
LUKIN, TEXAS

DAVY CROCKETT NATIONAL FOREST

6. TRINITY DISTRICT RANGER OFFICE
APPLE SPRINGS, TEXAS
7. NECHES DISTRICT RANGER OFFICE
CROCKETT, TEXAS

SAM HOUSTON NATIONAL FOREST

8. RAVEN DISTRICT RANGER OFFICE
NEW WAVERLY, TEXAS
9. SAN JACINTO DISTRICT RANGER OFFICE
CLEVELAND, TEXAS

SAM HOUSTON NATIONAL FOREST

TEXAS

INVENTORY AND DESIGNATION MAP

OHV Open Cross Country



Designated Trails

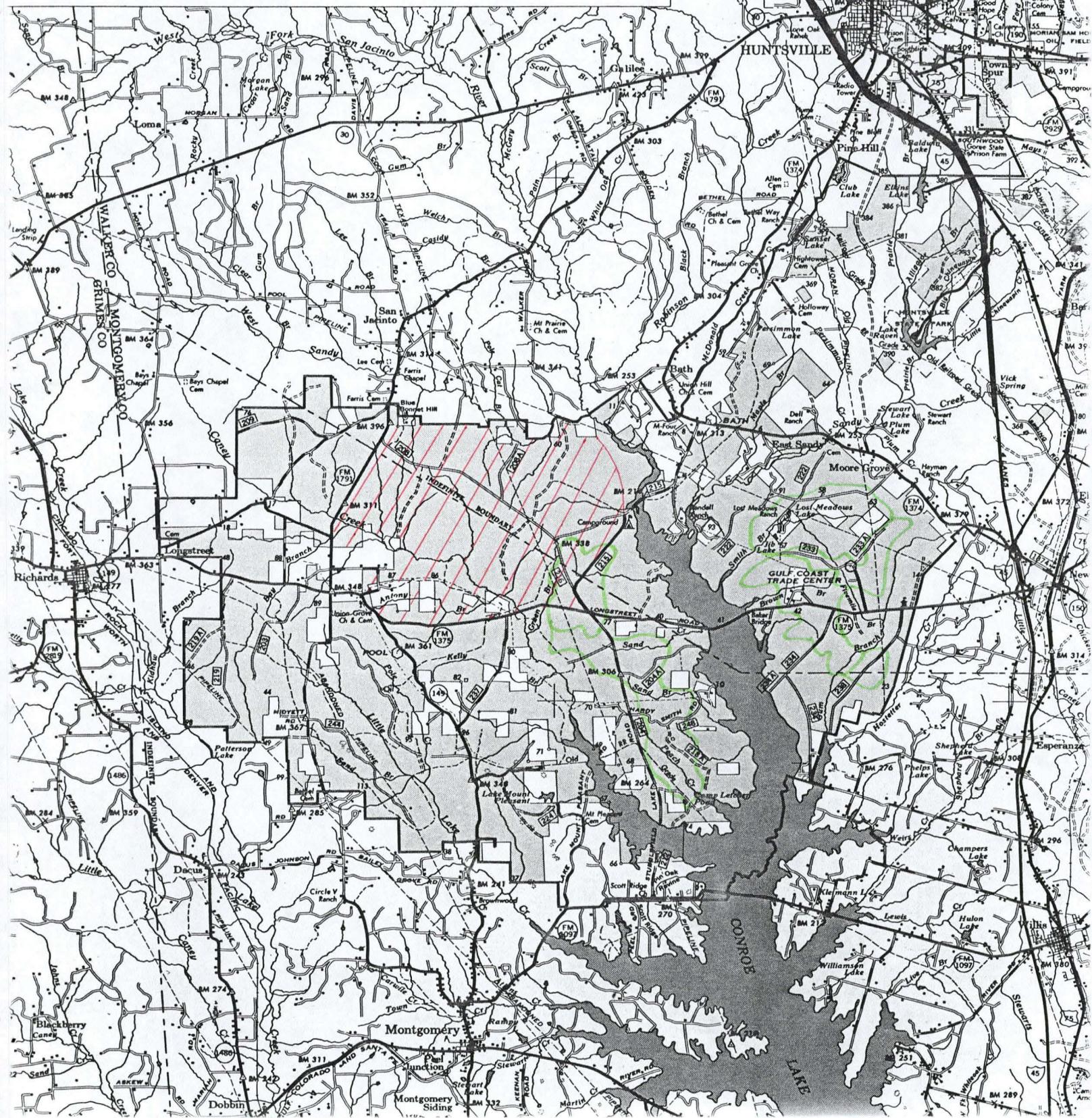


EXHIBIT #3

SIGNING

Above is an example of a symbol sign used to designate a road or trail as closed to certain OHV's as indicated by the symbols.

NATIONAL TRAVEL MANAGEMENT SIGNING

CARSONITE now offers a complete Travel Management Signing Program. Originally created by the U.S. Forest Service, these nationally-recognized programs are now available for all Federal and State land agencies.

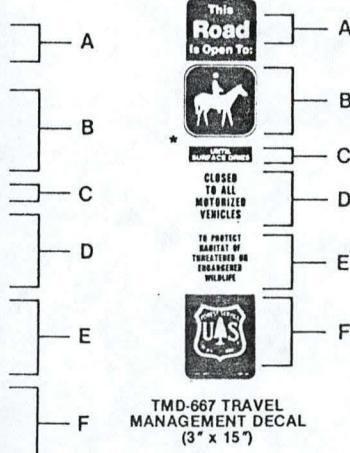
These signs and decals provide concise travel information in a positive tone by first explaining the types of travel permit-

ted and the dates permitted, followed by any travel restrictions and reasons for them.

These modular signs and decals with interchangeable message inserts permit easy customization to meet the specific needs of each governing agency while maintaining national uniformity and standardization.



TMS-666 TRAVEL MANAGEMENT SIGN (12" x 18")



* NOTE: Cut mark provided to allow room for additional messages or symbols.



TLS-658 TREAD LIGHTLY SIGN (12" x 18")



TLD-659 TREAD LIGHTLY DECAL (3" x 4 1/4")

All travel management signs and decals are non-reflective.

INSERT A (Supplied in 4 7/8" x 8 1/4" kiss cut sheets with individual 2 1/2" x 3/4" decals. Fits both sign or decal.)

SI/TM 139 Road
SI/TM 140 Trail
SI/TM 141 Area



INSERT B; "OPEN TO" INSERTS (10 1/4" x 2 3/4" Message for sign only; 2 1/4" x 2 1/2" Message for decal only; 3" x 3" Symbol for both sign and decal use)

Message Inserts (Custom messages available)

SI/TM-142 Foot and Horse Trail
SI/TM-143 Vehicles Less than 40" Wide
SI/TM-144 Foot Trail
SI/TM-146 Snow Machines
SI/TM-147 4-Wheels, ATVs and Cycles
SI/TM-A147 All Motorized Vehicles

Symbol Inserts (See Recreation Symbols section—Pages 11-13)

RS-003 Automobiles	RS-066 Bicycles
RS-004 Trucks	RS-067 Recreational Vehicles
RS-046 Cross-Country Skiing	RS-068 Hiking
RS-052 Snowmobiling	RS-078 Snowshoeing
RS-064 Horse Travel	RS-108 ATVs
RS-065 Motorcycles	

INSERT C (Supplied in 9" x 4 5/8" kiss cut sheets with individual 3" x 3/4" decals shown. Fits both sign or decal. Custom dates available.)

ORDER—SI/TM-148

JAN 1 - JUN 15	FEB 1 - MAR 15	MAR 1 - MAY 15
APR 1 - APR 15	MAY 1 - MAY 15	JUN 1 - JUN 15
JUL 1 - JUL 15	AUG 1 - AUG 15	SEP 1 - SEP 15
OCT 1 - OCT 15	NOV 1 - NOV 15	DEC 1 - DEC 15
YEARLONG	YEARLONG	YEARLONG
UNTIL SURFACE DRIES WHEN SNOW IS 8" OR DEEPER	UNTIL SURFACE DRIES WHEN SNOW IS 12" OR DEEPER	UNTIL SURFACE DRIES WHEN SNOW IS 12" OR DEEPER

INSERT D; "CLOSED TO" INSERTS (10 1/4" x 2 3/4" Message for sign only; 2 1/4" x 2 1/2" Message for decal only)

Message Inserts (Custom Messages Available)

SI/TM-149 Closed To All Motorized Vehicles
SI/TM-150 Closed To All Other Motorized Vehicles
SI/TM-151 Closed to All Other Uses

INSERT E (10 1/4" x 2 3/4" Message for sign only; 2 1/4" x 2 1/2" Message for decal only)

Explanation/Reason Inserts (Custom Messages Available)

SI/TM-152 To Provide For Firewood Removal
SI/TM-153 To Protect Wildlife Habitat Area
SI/TM-154 To Protect Habitat of Threatened or Endangered Wildlife
SI/TM-155 To Prevent Disturbance To Elk Calving Area
SI/TM-156 To Prevent Disturbance To Nesting Turkeys
SI/TM-157 To Protect Eagle Habitat Area
SI/TM-158 To Prevent Damage To Road Or Trail Surfaces
SI/TM-159 To Prevent Wheel Ruts and Soil Erosion
SI/TM-160 To Protect The Wilderness Environment
SI/TM-161 To Prevent Damage To Vegetation
SI/TM-162 To Protect A Natural Meadow
SI/TM-163 To Return Road Or Trail To Its Original Condition
SI/TM-164 To Reduce Road Maintenance Costs
SI/TM-165 To Protect Research Area
SI/TM-166 To Reduce Conflicts Between Users
SI/TM-167 To Provide A Non-Motorized Recreation Experience
SI/TM-168 Road Not Maintained For Low Clearance Vehicles
SI/TM-169 To Provide Public Access
SI/TM-123 Due To Unsafe Conditions

INSERT F; AGENCY IDENTIFICATION LOGOS (3" x 3" for both sign and decal—See page 13 for logos; custom logos available)

RS-104 Forest Service Shield	RS-204 Dept. of Interior
RS-201 Bureau of Land Mgmt.	RS-205 U.S. Fish and Wildlife
RS-202 National Park Service	RS-206 N.O.A.A.
RS-203 Corps. of Engineers	RS-207 Bureau of Indian Affairs



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Telephone: (702) 883-5104

CALL TOLL FREE: 800-648-7974



National Forests in TEXAS PROHIBITIONS

UNITED STATES DEPARTMENT OF AGRICULTURE
U.S. FOREST SERVICE
701 North First Street
Lufkin, Texas 75901

ORDER OF FOREST SUPERVISOR

ORDER NO. # 13-90/06

Pursuant to Title 36 Code of Federal Regulations, Section 261.50(a) and (b), it is hereby ordered that the prohibitions hereinafter set forth apply to:

NATIONAL FORESTS IN TEXAS

The following prohibited act as set forth in Title 36 Code of Federal Regulations, Section 261.56 is hereby applied to the above described area:

IT IS PROHIBITED TO POSSESS OR OPERATE A VEHICLE OFF ROAD WITHIN THE GENERAL FOREST AREA UNLESS THE OPERATOR IS IN POSSESSION OF A STATE DRIVER'S LICENSE OR STATE IDENTIFICATION CARD. (36 CFR 261.56)

Violation of the prohibition set forth above is prohibited by the provisions of the regulations cited, and under 16 USC 551 and 7 USC 1011(f) any such violation is subject to punishment by a fine of not more than \$500 or imprisonment of not more than six (6) months, or both.

William M. Lannan

WILLIAM M. LANNAN
Forest Supervisor

10-30-90
DATE

EXHIBIT #5

MONITORING SYSTEM

Resources to be Monitored

Designated OHV Route			
Within 1/ ROAD OR TRAIL	Outside 2/ ROAD OR TRAIL	Entire 3/ Unit	DE
----	----	Visual	
Soil	Soil	----	
----	Vegetation	----	
----	----	Water	
----	----	Fish & W/L	
----	----	Conflicts w/other uses	
Cultural	Cultural	----	

1/ The actual traveled surface of the designated route.

2/ The strip of immediate influence, on either side of designated route, normally for parking, passing, and campsite access. Also includes terrain that receives vehicle use in violation of the route designations.

3/ The entire area which includes the total of #1 and #2 plus land unused by vehicles.

The District Rangers may specify additional resources to be monitored in unusual or unique circumstances.

CRITERIA FOR RESOURCE MONITORING 1/Within Established or Designated Travel WayBenchmark Condition

Soil - Loss occurs due to water erosion, wheel or track displacement, and maintenance activities. Compaction and changes in soil structure expected.

Unacceptable Change 2/

Loss occurs at a rate exceeding the capability of normal maintenance efforts, including periodic heavy maintenance, surface replacement, and reconstruction, to retain the travel way in a usable condition.

Cultural - Significant cultural values are not being lost to direct OHV impacts. 3/

Significant cultural values are lost due to direct OHV impact.

- 1/ The specific quantification and qualification of resource criteria shall be developed as needed by forests. For example, the amount of soil loss and definition of normal maintenance under unacceptable change may need definition.
- 2/ Unacceptable change is that beyond the threshold of considerable adverse effects as per Executive Order 11644-11989. It includes presently occurring effects as well as reasonably anticipated effects.
- 3/ Includes all cultural properties (i.e., historical, archaeological).

Outside Established or Designated Travel Way

<u>Benchmark Condition</u>	<u>Unacceptable Change</u>
<u>Soil</u> - Loss results primarily from natural forces, occasionally and locally accelerated by OHV's operating off designated or established travel ways. Some deposition occurs from erosion of designated or established travel ways.	Accelerated loss results from dusting, water erosion, and wheel and track displacement due to more than occasional OHV travel outside designated or established travel ways and the number and extent of "established" routes is increasing; active erosion is spreading from the established or designated routes; soil eroded from the designated or established routes is being extensively deposited or transported; or the basic site productivity is declining.
<u>Vegetation</u> - Plant composition, diversity, density, and vigor are not affected by OHV use other than in localized areas where vehicles have left the established or designated travel ways.	Plant composition, diversity, density, and vigor are declining due to OHV use in more than localized areas where vehicles have left the established or designated travel ways.

Entire Unit

<u>Benchmark Condition</u>	<u>Unacceptable Change</u>
<u>Water</u> - Siltation, turbidity, or pollution of streams due to OHV use does not exceed natural background levels or FLMP standards.	Siltation, turbidity, or pollution of streams due to OHV use exceeds natural background levels or FLMP standards.

Wildlife - Species mix or populations of resident or transient species are stable, or changes are not attributable to OHV impact on habitat.

Species mix or populations of resident or transient species are declining due to OHV impact on habitat.

Other Uses - Conflict between OHV uses and other uses occasionally occurs locally, but conflicts do not result in changes or shifts in the kinds or patterns of uses.

Conflict between OHV and other uses result in changes or shifts in the kinds or patterns of use in extensive portions of the unit.

Normally, monitoring will be performed on a visual basis. When unusually sensitive locations or situations are involved, it may be necessary or desirable to use more sophisticated methods for monitoring including instrumentation, soil and vegetation transects, water sampling, camera points, and so on. The contribution that National Forest visitors can make to the monitoring process, particularly in identifying problem or sensitive areas, should be considered.

When monitoring indicates that one or more resources are receiving, or are likely to receive, unacceptable adverse impacts from OHV use, an environmental assessment may be completed to determine the nature of the action to be taken within the affected areas. The action may consist of corrective or mitigative measures such as soil stabilization, seeding, route relocation, structure installation, etc.; or closure or restriction may be desirable. The environmental assessment should consider the range of feasible alternative. The decision to adopt a particular alternative should consider the relative value of the recreation opportunities that would be foregone by closure or restriction, and the cost of correction or mitigation to reduce OHV effects to an acceptable level. Major changes or mitigative measures should be documented throughout the NEPA process.

Forest monitoring plans shall include the following elements:

1. A summary of the present Forest plans for OHV's and OHV use situation in the Forest.
2. Monitoring Plan Objectives.
3. A monitoring schedule with a brief description of the sample rationale. Include cost estimates.

4. A description of planned public involvement efforts and annual coordination with other agencies, public and private organizations, local OHV dealers and users.
5. A reporting format and time for submission of District responses to Forest Supervisors.

Documentation of monitoring shall include the following elements:

1. The areas actually monitored with a brief explanation of any changes from the planned schedule that were necessary.
2. The results of monitoring, including cost.
3. The areas where monitoring, indicates considerable adverse effects are occurring or are likely to occur, and for which an environmental assessment should be prepared to determine the appropriate course of action.
4. A description of localities in which immediate and specific emergency action is needed prior to completion of an environmental assessment.
5. A schedule for completing items 3 and 4, if applicable, an assignment or responsibility, and estimated costs.